
INFANT RESUSCITATOR

BR - 100

MANUAL BOOK

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Please read and keep this manual in order to use

The Infant Resuscitator correctly!

1. Introduction

For the infants who are in respiratory failure, especially in cardiac arrest and critical condition, infant resuscitator can do CPR as soon as possible and make a series of consecutive ambulance to achieve the effective resuscitation results.

There has been an increasing awareness of the importance of the resuscitation device in improving the efficiency and success of the CPR.

As a resuscitation device, BR-100 infant resuscitator is easy to handle, adaptable and provides accurate and controlled ventilation to the patients.

2. Intended use and features

2.1. Intended use

Infant resuscitator is intended to use in the first-aid places, such as newborn room, NICU, delivery suites to supply lung ventilation for patients with difficulty in breathing.

The source of this resuscitator is compressed gas. The inspiratory phase and expiratory phase are manually operated.

2.2 Features

- a) PIP (Peak Inspiratory Pressure) and PEEP (Positive End Expiratory Pressure) are pre-set by the user, and displayed on the manometer.
- b) Accurately regulate and maintain a constant and uniform PIP (Peak Inspiratory Pressure).
- c) Accurately regulate and maintain a constant and uniform PEEP (Positive End Expiratory Pressure).
- d) Respiratory rate and IE (inspiration and expiration ratio) are controlled by the time of pressing and releasing air outlet.
- e) Tidal volume is adjusted by adjusting the gas flow and the speed of pressing.
- f) The maximum airway pressure can be set.
- g) If really necessary, oxygen with content of 100% is available.
- h) Simple to operate and the operator can complete with less fatigue.
- i) Easily portable.

3. The symbols and definitions

Symbol	Definition
 	Attention: Consult the Operating Instructions.
	The Max Pressure Relief that may be delivered to the patient. (factory set at 40 cmH ₂ O)
	Peak Inspiratory Pressure(Adjusted as required)
 5-15L/min	Gas inlet connection from gas supply (5 to 15L/min)
	Gas outlet connection to patient

4. Performance Specifications and Technical Specification

Performance Specifications

The relation between the adjustment range of the PIP and the gas supply	
Input Gas Flow (L/min)	Peak Inspiratory Pressure (PIP) cmH ₂ O (mbar)
*5	2~70
*8	3~74
*10	4~76
*15	10~77
The relation between the adjustment range of the PEEP and the gas supply	
Input Gas Flow (L/min)	Positive End Expiratory Pressure (PEEP) cmH ₂ O (mbar)
*5	1~6
*8	1.5~10
*10	3~15
*15	5~25
Input Gas Flow	5L/min~15L/min
Note: Figures with* listed above are representative only. PEEP and PIP values stated are typical ones. Higher PEEP values can be achieved if higher PIP values are set.	
NOTE: Factory setting of pressure limit valve is at 40 cmH ₂ O (mbar). Pressure limit valve is to limit the pressure in the circuit. In particular cases, adjust the upper limit value of pressure to, or the pressure in the circuit will not exceed 40 cmH ₂ O (mbar).	

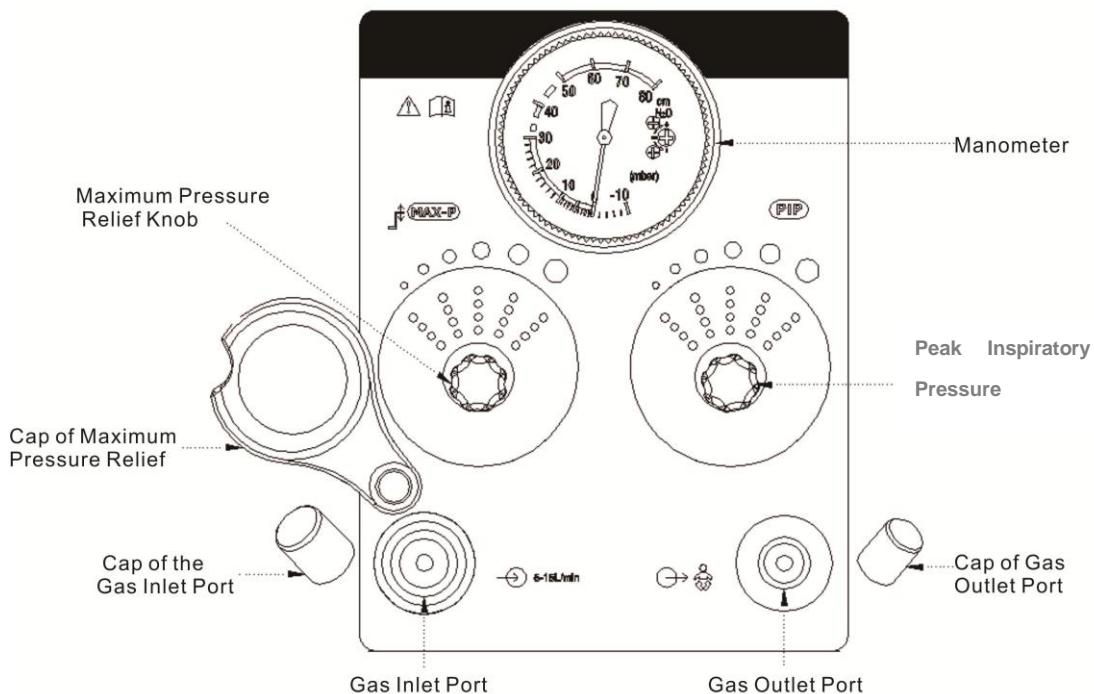
Technical Specification

Item	Parameters
Height	270 mm
Width	200 mm
Depth	110 mm
Weight	1.8 kg
Manometer Range	-10 cm~+80 cmH ₂ O
Manometer accuracy	±2%
Storage environmental condition	Temperature: -40°C~+60°C; Humidity: ≤95% RH
Operating environmental condition	Temperature: -18~+50°C; Humidity: 5% ~95%RH
Dead Space	6 mL
Recommended Patient Body Weight	≤10 Kg
Delivered Oxygen Concentration	Over 85%
Unit of measurement	On the resuscitation devices, “cmH ₂ O” and “mbar” represent pressure. And on some other

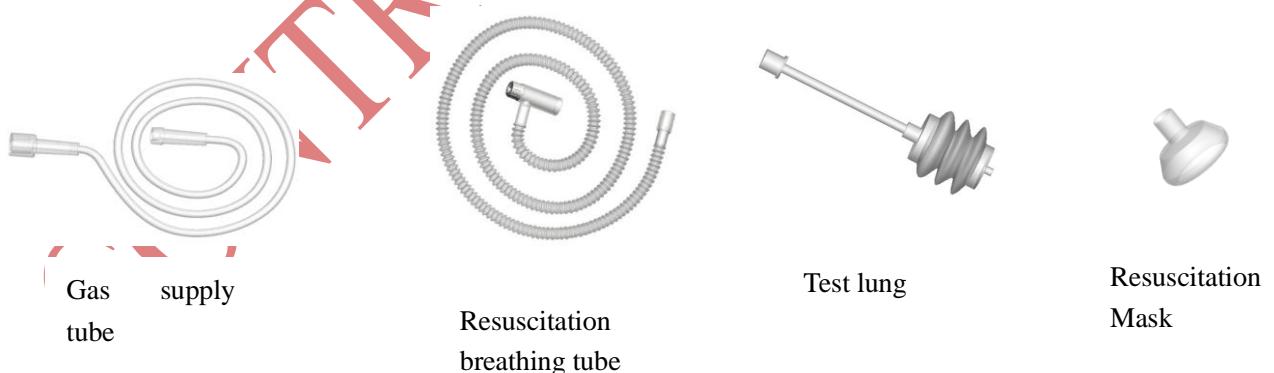
devices “hPa” is the unit of measurement. Since 1mbar is equal to 1hPa and is also equal to 1.016 cmH₂O, they can be used reciprocally.

5. Operation panel, accessories and operating principle

5.1 Operation panel (As shown in the picture below)



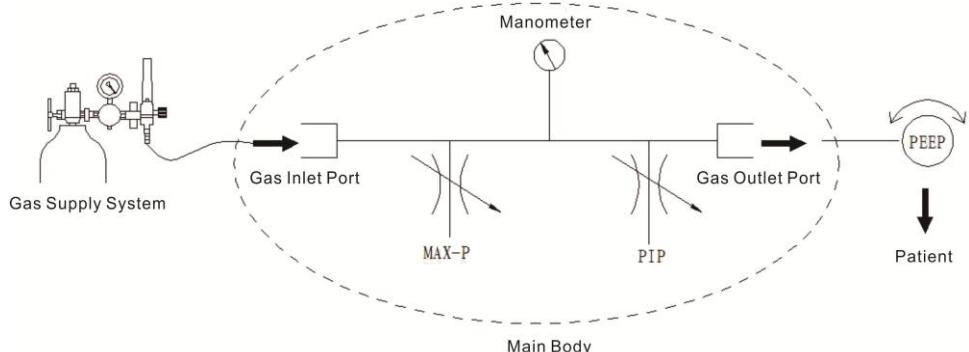
5.2 Breathing tube and accessories



5.3 Operation principle

Air/oxygen mixture gas of which the gas flow rate is 5~15L/min enters into the machine from the gas inlet port, pass through MAX-P valve and PIP valve and enters the resuscitation tube from the gas outlet port, then enters into the patient lung through the mask. Since the positive valve is installed on the end of the resuscitation tube, the operator can control the inspiratory and expiratory of the infant by pressing and releasing the PEEP valve. The manometer can show the airway pressure accurately. The Operation principle is shown

below:



6. Install and parameter adjustment

Before operation, please install and check according to the operation manual to guarantee the normal work of the infant resuscitator.

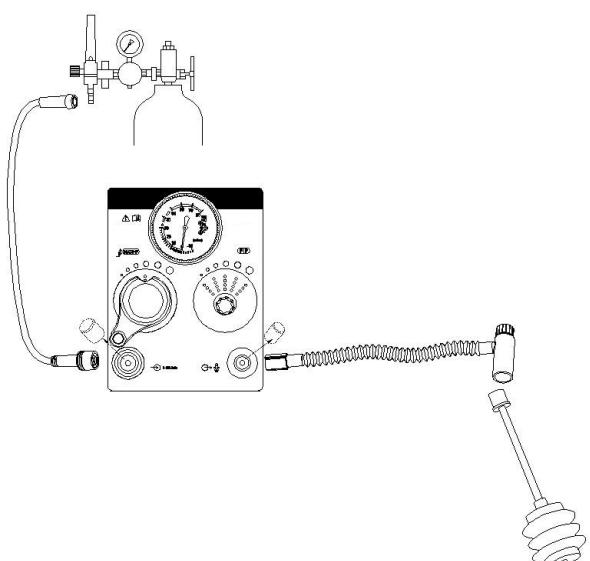
6.1 Testing of the Manometer

Check that the manometer reads zero before operation. If not, unscrew the transparent plastic cover of the manometer counterclockwise. And reset the manometer to zero with a suitable screwdriver. Then cover it with the transparent cover clockwise. As is shown below:



6.2 Connect Gas Supply

Pull the cap on the gas inlet port. Connect oxygen or air/oxygen mixture port to the gas inlet port with the gas supply line.



6.3 Connect the Resuscitation tube

Pull the cap on the gas outlet port. Plug the input side of the breathing tube into the gas outlet port. Connect the PEEP valve output port with the test lung.

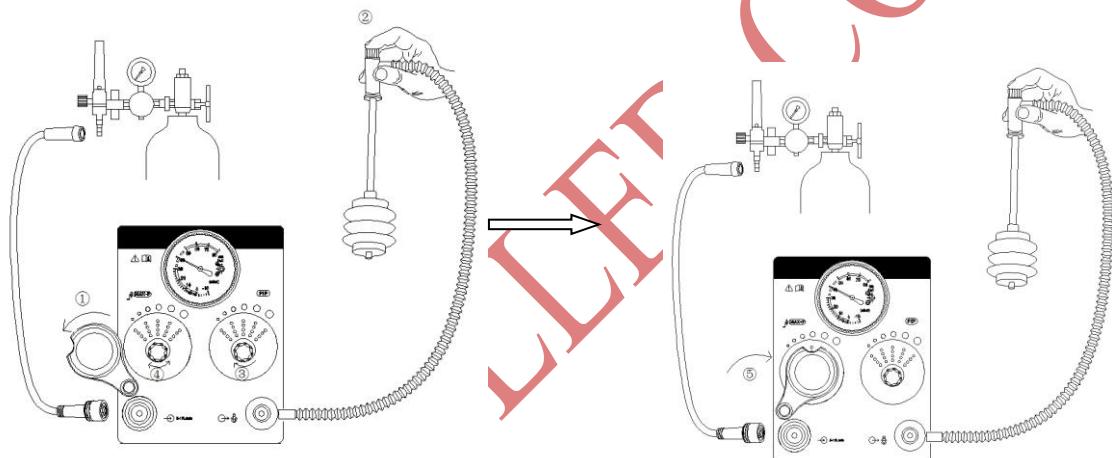
6.4 Adjusting for Input Gas Flow

According to the clinical needs, adjusts the gas supply flow to the value required (Recommended operating gas flow for the neonate is 8L/min and for the child is 12L/min). Don't change the value casually after it is set up, since the change of it will cause the change of the related pressure set.

6.5 The setting up of the Maximum Airway Pressure (Max-P), Peak Inspiratory Pressure (PIP) and Positive End Expiratory Pressure (PEEP)

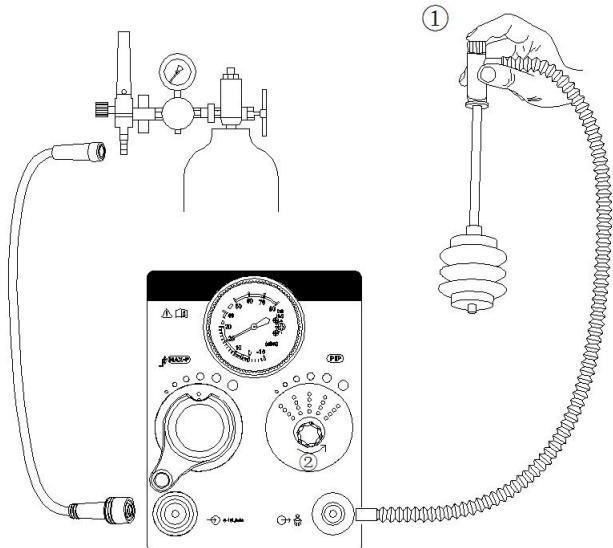
6.5.1 The setting up of the Max-P

- ① Pull the cap of the Maximum Pressure Relief valve to a suitable height and turn it counterclockwise for 60°to the position shown below.
- ②Securely occlude the air outlet of the PEEP valve with the thumb.
- ③Close the PIP value by turning the knob fully clockwise.
- ④Adjust the Max Pressure Relief knob clockwise or counterclockwise until the manometer indicator reaches the upper pressure limit value needed (Factory setting of pressure limit value is 40cmH₂O)
- ⑤After setting up, turn the cap of the Max-P to the original position clockwise.



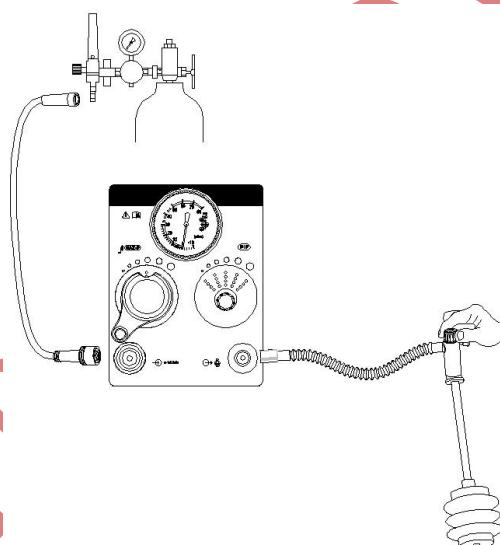
6.5.2 The setting up of PIP (Peak Inspiratory Pressure)

- ①Securely occlude the air outlet of the PEEP valve with the thumb.
- ② Turn the PIP knob counterclockwise until the manometer indicator reaches the clinical requirement. As is shown below:



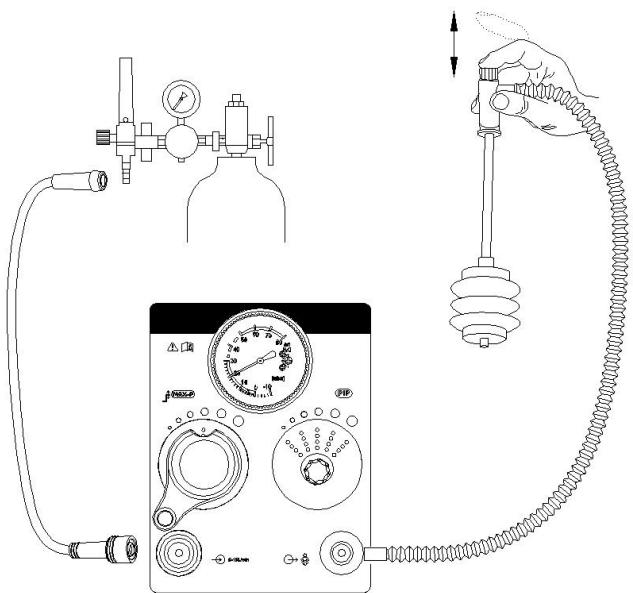
6.5.3 The setting up of PEEP

Turn the PEEP control knob clockwise or counterclockwise until the value of manometer indicator meets the clinical requirement. As is shown below:



6.5.4 Check the values set up

Occlude and uncover the air outlet of the PEEP valve, observe the manometer value to check if the maximum and minimum value conform to the PIP and PEEP value set up above. As is shown below:

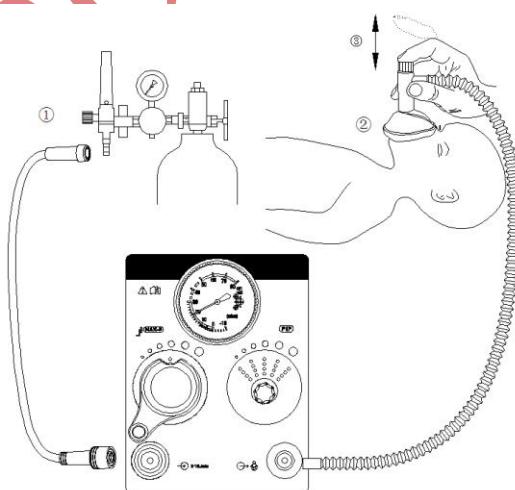


6.6 Remove the test lung

Remove the test lung from the PEEP valve and properly keep it.

7. To resuscitate

- ① Set the clinical specifications according to the Chapter 6.4 and 6.5
- ② Fit the resuscitation mask to the PEEP valve output port and place over the baby's mouth and nose.
- ③ Resuscitate by pressing and removing over the PEEP outlet port alternating with forefinger to allow patient for inspiration and expiration. (Refer to below figure)



8. Warning

- a) This resuscitator is only for first responder to use on the first-aid. Once the CPAP is available, the patient should be transfer to these devices.
- b) For connection to flow-regulated oxygen or oxygen/air mixture only.
- c) Ensure smoking, naked flames or sources of ignition are prevented while the unit is in use. Oil or

grease should not be used on any component parts of the resuscitator.

- d) Do not attempt to use a higher gas flow than 15L/min.
- e) The device must not be used on unattended patients.
- f) Incorrect use can be hazardous for patients.

9. Cautions

- a) Please read and understand the instructions fully before using the resuscitator. Infant resuscitator is to be used only by persons trained in infant resuscitation and familiar with the using scope. Ensure all users of the device have been adequately trained in resuscitation techniques.
- b) The infant resuscitator must only be used after checking the correct pressures to be delivered to the baby.
- c) Input gas flow range is 5 to 15L/min. Recommended operating gas flow is 8 L/min.
- d) The Max Pressure Relief can be adjusted up to 78cmH₂O, which should only be done in exceptional circumstances by persons trained in infant resuscitation.
- e) Ensure all oxygen and air supplies are turned off and the cleaned parts are disconnected from the air supply when performing cleaning procedures. Explosion and fire hazard can exist when performing cleaning procedures in an oxygen-enriched environment.

10. Cleaning and Sterilization

10.1 Notices when cleaning

- a) Explosion and fire hazards can exist when performing cleaning procedures in an oxygen-enriched environment.
- b) Ensure the resuscitation circuit is disconnected from the infant resuscitator before performing cleaning procedures.
- c) Dust all surfaces with a clean damp soft cloth.
- d) After the clean of the air supply tube, put it in the specific clean place for using next time.
- e) In normal case, clean and maintenance is performed rarely.

10.2 Sterilization

10.2.1 Test Lung

Test lung can be disinfected by autoclaving. Recommended way: It can be disinfected by autoclaving at 121°C, 15psi for 30 minutes. Since there are different sizes and types of autoclave, the pressure, temperature, humidity and time are different. Please refer to the manufacturer's instructions or the standard of the sterilization. The way of disinfection with liquid is not recommend since some agentia may result in the product discoloration.

10.2.2 Resuscitation masks

Disinfect before using, as in the above 10.2.1.

10.2.3 Resuscitation breathing tube

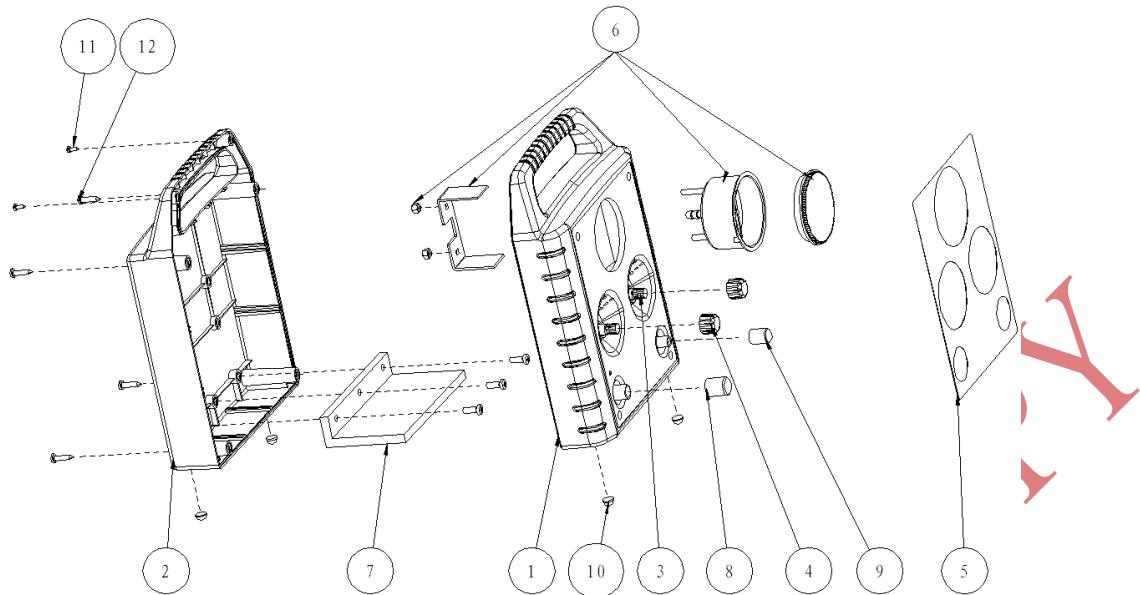
Resuscitation breathing tube is a single-use part. It can be used if the package is complete. (It is suggested to disinfect it with ethylene oxide before using)

10.2.4 Gas Supply tube

It can be reusable. Clean and disinfect it regularly as requirement with ethylene oxide.

10.3 Notice: Do not autoclave or gas-sterilize any part of the main body of the infant resuscitator.

11. Assembly Diagram

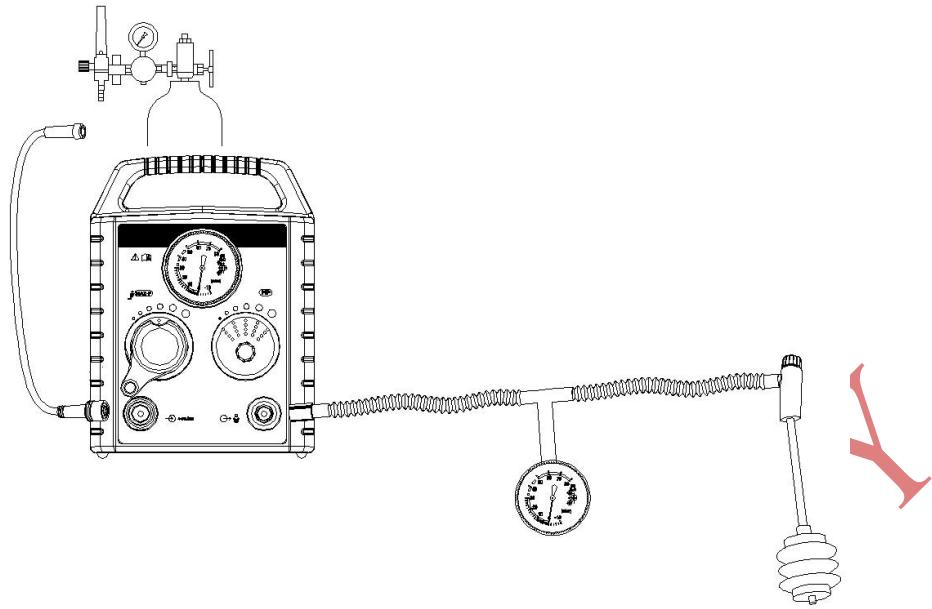


- | | | |
|----------------|------------------------------|-------------------------------|
| 1.Housing case | 2. Back cover | 3.Valve component |
| 4.Knob | 5.Sticker | 6. Manometer parts |
| 7.Clump weight | 8. Cap of the gas input port | 9. Cap of the gas outlet port |
| 10. Foot pad | 11.Tapping screw M3×10 | 12.Tapping screw M4×15 |
| 13.Screw M5×14 | | |

12. Testing of the Manometer and the Valve System

12.1 Testing of the manometer

- Check whether the manometer reads zero. If not, the resetting of the manometer to zero procedure (Section 3.3.4) should be followed.
- Connect the outlet port of the infant resuscitator to breathing tube of PEEP valve and a calibrated manometer with a three-way connection (The Positive End Expiratory Pressure value can be used as a release valve).
- Set the gas supply to 5-15L/min. Completely close the maximum pressure limit valve by turning the knob clockwise. With the release valve closed, adjust the Peak Inspiratory Pressure knob until the gauge reading 20 cmH₂O. Check the manometer on the resuscitator under occlude and uncover the release valve repeatedly to check that the needle on the manometer of the resuscitator rises and falls smoothly. The readings for the 2 manometer shall be coincident.
- Set the gauge to 15 cmH₂O and 40 cmH₂O as the same way above and observe the manometer.
- If the deviation values between the manometer and the gauge is within +/- 2 cmH₂O and the needle of the manometer can move rise and fall smoothly, the manometer is accurate. If not, please replace a new one.



12.2 Testing of the Valve System

- a) Set the flow of gas supply to 5 L/min. Completely turning the PIP knob and the Max-P knob clockwise to close them. Close the release valve with thumb and check that the gauge needle whether at 70cmH₂O.
- b) Set the flow of gas supply to 10 L/min. Completely turning the PIP knob and the Max-P knob clockwise to close them. Close the release valve with thumb and check that the gauge needle whether at 76 cmH₂O.
- c) Set the flow of gas supply to 15 L/min. Completely turning the PIP knob and the Max-P knob and the Max Pressure knob clockwise to close them. Close the release valve with thumb and check that the gauge needle whether at 77cmH₂O.
- d) Finally reset the maximum limited pressure and peak inspiratory pressure.

Notice: The larger deviation (more than 5%) shows the faulty of the valve. Please replace a new one.

13. Maintenance

13.1 Introduction

If there is a failure in the accessories, such as manometer and valve assembly, please replace them.

13.2 Manometer Replacement

13.2.1 Introduction

The manometer is a key assembly. If there is any failure, please replace a new one in time.

13.2.2 The way of manometer replacement

- a) Remove the back cover fixed by 6 tapping screws with a cross screwdriver;
- b) Disconnect the back cover and from the housing case;
- c) Disconnect the tube from the manometer;
- d) Remove the manometer support by unscrewing the two retaining nuts on the support;
- e) Take out the manometer from the front panel;
- f) Fit the new manometer into the front panel and fit the support and then tighten the screws;

-
- g) Connect the tube;
 - h) Check the manometer. If the manometer doesn't read zero, please refer to Section 6.1. Then carry out the testing of the manometer (Section 12.1)

13.3 Valve Assembly Replacement

The valve assembly is serviceable item. The valve assembly and the housing case is an organic whole and can't be disassembled. If there is any problem, the housing case, except the manometer must be replaced. As is shown in the following:

- a) Remove the manometer from the infant resuscitator. See Section 13.2.2.
- b) Fit the existing manometer on the new housing case. See Section 13.2.2
- c) Refit the housing case to the back cover with six trapping screws.
- d) Carry out the testing of the valve system. Please refer to the Section 12.2.

14. After-sale service

Dear customer:

Thank you for using our medical equipment products. Please keep this list properly. Products which are defective in quality or breaking down can be guaranteed or maintained by this list.

All our products will be guaranteed for two year warranty and maintenance (except man-made damage). If the product can not reach technical parameters or other quality problems, please contact our customer care service of our company or closest distributor.

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